

487630



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TECHNICAL ASSISTANCE TEAM FOR EMERGENCY RESPONSE REMOVAL AND PREVENTION  
EPA CONTRACT 68-01-7367

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230 South Dearborn Street  
Chicago, Illinois 60604

September 30, 1988

TAT-05-G2-00620

Re: Lusher Street, Elkhart, Indiana  
TDD# 5-8801-16

Dear Mr. Faryan:

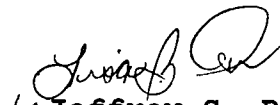
On January 29, 1988, the Technical Assistance Team (TAT) was requested by the U.S. Environmental Protection Agency (U.S.EPA) to assist the On-Scene Coordinator (OSC) during the action at the Lusher Street Site, Elkhart, Indiana.

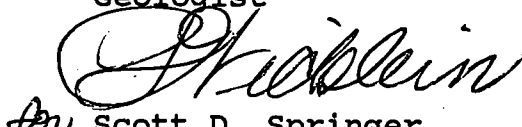
The attached OSC Report summarizes the history of the Lusher Street site, and describes activities involved in the mitigative action from November 19, 1987 to August 31, 1988. Included in the report are costs derived from the U.S. EPA 1900-55 Forms. The OSC appendices are not included as they are in the possession of the OSC.

Should you have any questions or require additional information, please feel free to contact us.

Very truly yours,

ROY F. WESTON, INC.

  
for Jeffrey S. Binkley  
Geologist

  
by Scott D. Springer  
Technical Assistance Team  
Leader, Region V

JSB:sdb

Roy F. Weston, Inc.

SPILL PREVENTION & EMERGENCY RESPONSE DIVISION

In Association with ICF Technology Inc., C.C. Johnson & Associates, Inc., Resource Applications, Inc.,  
Geo/Resource Consultants, Inc., and Environmental Toxicology International, Inc.

**OSC REPORT**  
**FOR**  
**LUSHER STREET SITE**  
**ELKHART, INDIANA**

**Prepared For:**  
**U.S. Environmental Protection Agency**  
**Region V**  
**230 South Dearborn Street**  
**Chicago, Illinois**

**CONTRACT NO. 68-01-7367**

**TAT-05-G2-00620**

**TDD NO. 5-8801-16**

**Prepared By:**  
**WESTON-SPER**  
**Technical Assistance Team**  
**Region V**

**September 1988**

### Executive Summary

On November 19, 1987, the United States Environmental Protection Agency (U.S. EPA) initiated a mitigative action at the Lusher Street site in Elkhart, Indiana. The action was taken to mitigate the threats to human health posed by the volatile organic compound contamination of residential and business water wells. This contamination posed threats through ingestion and inhalation during use of the wells.

The U.S. EPA installed municipal water hookups at residences and provided carbon filtration units to 12 residences and businesses. After completion of an Extent-of-Contamination study, nine municipal water hookups were installed at additional residences and business and 19 residents were provided carbon filtration units.

The action was completed on August 31, 1988, at a cost of \$\_\_\_\_\_, which includes \$26,157.14 for the Emergency Cleanup Services (ERCS) contractor cost. The On-Scene Coordinator was Ken Theisen.

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## 1.0 Summary of Events

### 1.1 Site Location

The City of Elkhart is located in Elkhart County in north-central Indiana (Figure 1). The Lusher Street site under investigation encompasses a 46 square block residential-industrial area on the southwest side of Elkhart (Figure 2). The area is bordered to the north by the St. Joseph River, to the west by State Road 19, to the east by Avalon Street (north of Lusher Street) and 15th Street (south of Lusher Street), and to the south by Leininger Street.

### 1.2 Initial Situation

While conducting a potential responsible party ( P R P ) extent-of-contamination (EOC) survey, Gemeinhardt, Inc., detected contamination in several wells in the four square block area immediately south of Lusher Street. Gemeinhardt, Inc., situated approximately 3/4 mile south of Lusher Street believed the contamination in this area was independent of the plume they were addressing; therefore, no further actions were taken and the Elkhart County Health Department (ECHD) was notified.

#### 1.2.1 State and Local Efforts to Take Action

Following notification from Gemeinhardt, Inc. the ECHD executed an all-inclusive sampling effort within the area bordered by State Road 19 on the west, 15th Street on the east, Leininger Street to the south, and Lusher Street to the north. As preliminary analytical results indicating widespread contamination were received, the sampling effort was expanded to include an area north of Lusher Street. This sampling effort included all wells within an area bordered by State Road 19 to the west, Avalon Street to the east, Lusher Street to the south and the St. Joseph River to the north.

In total, the ECHD sampled 145 wells identifying 103 which were contaminated with 1,1,1-trichloroethane (1,1,1-TCA) and/or trichloroethene (TCE). Fifteen of the 103 affected wells were found to contain levels that exceeded or were within 50 percent of the U.S. Environmental Protection Agency (U.S. EPA) Removal Action Level for TCE (128 parts per billion [ppb]) and/or 1,1,1-TCA (500 ppb). Subsequently, the ECHD requested assistance from the U.S. EPA in providing alternate drinking water supplies to the affected residents and businesses.

On October 30, 1987, the Technical Assistance Team (TAT) met with ECHD officials and reviewed their analytical results to evaluate the extent of the contaminant plume. The TAT constructed a map

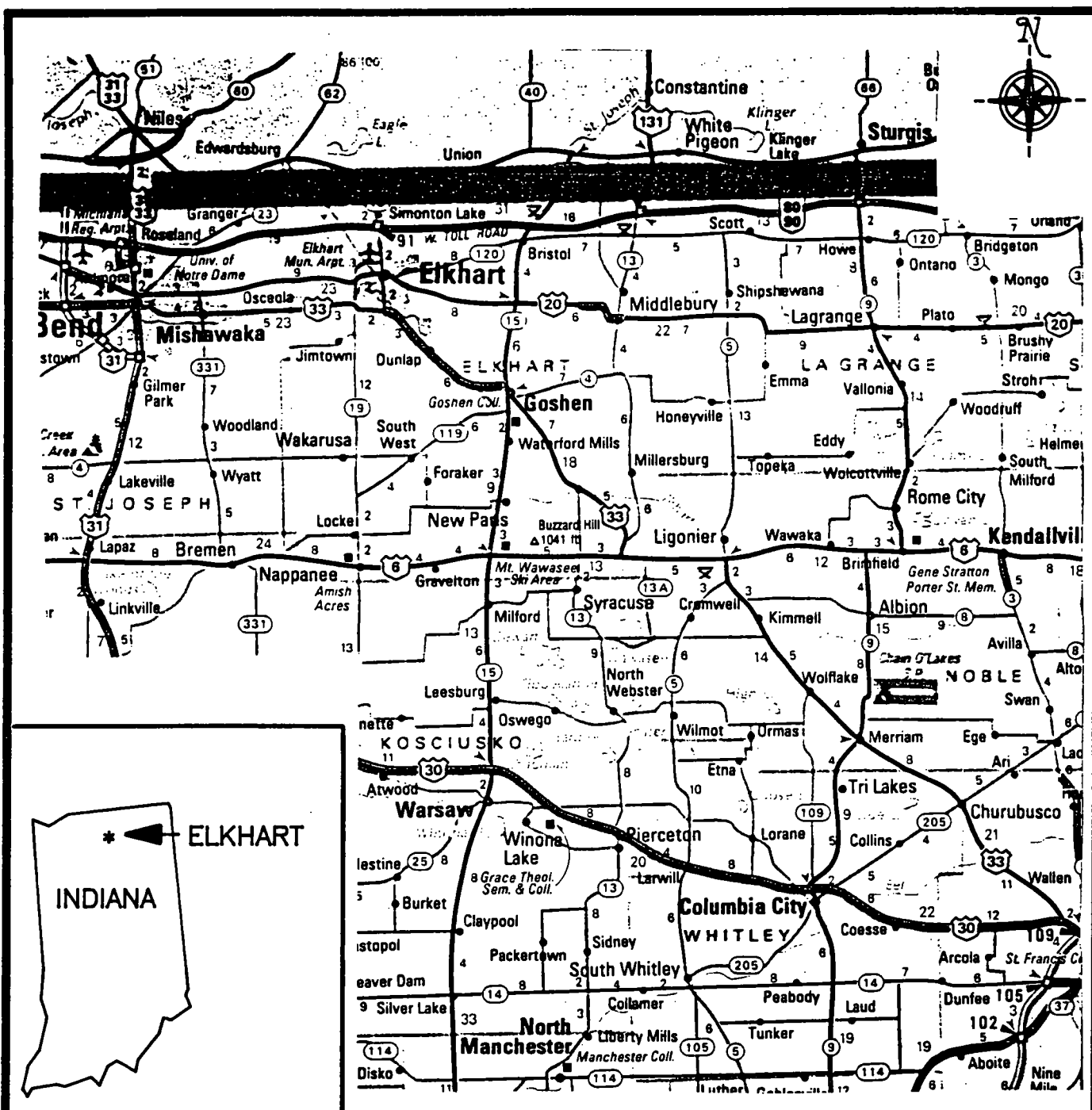


FIGURE 1

SITE LOCATION MAP  
LUSHER STREET  
GROUNDWATER CONTAMINATION  
ELKHART, INDIANA

SCALE 1 INCH = 15 MILES

**WESTON**  
MANAGERS DESIGNERS/CONSULTANTS

DRAWN BY	DATE	PCS #
RADACK	9-20-88	1413
APPROVED BY	DATE	TDD #
AXE	9-20-88	5-8801-16



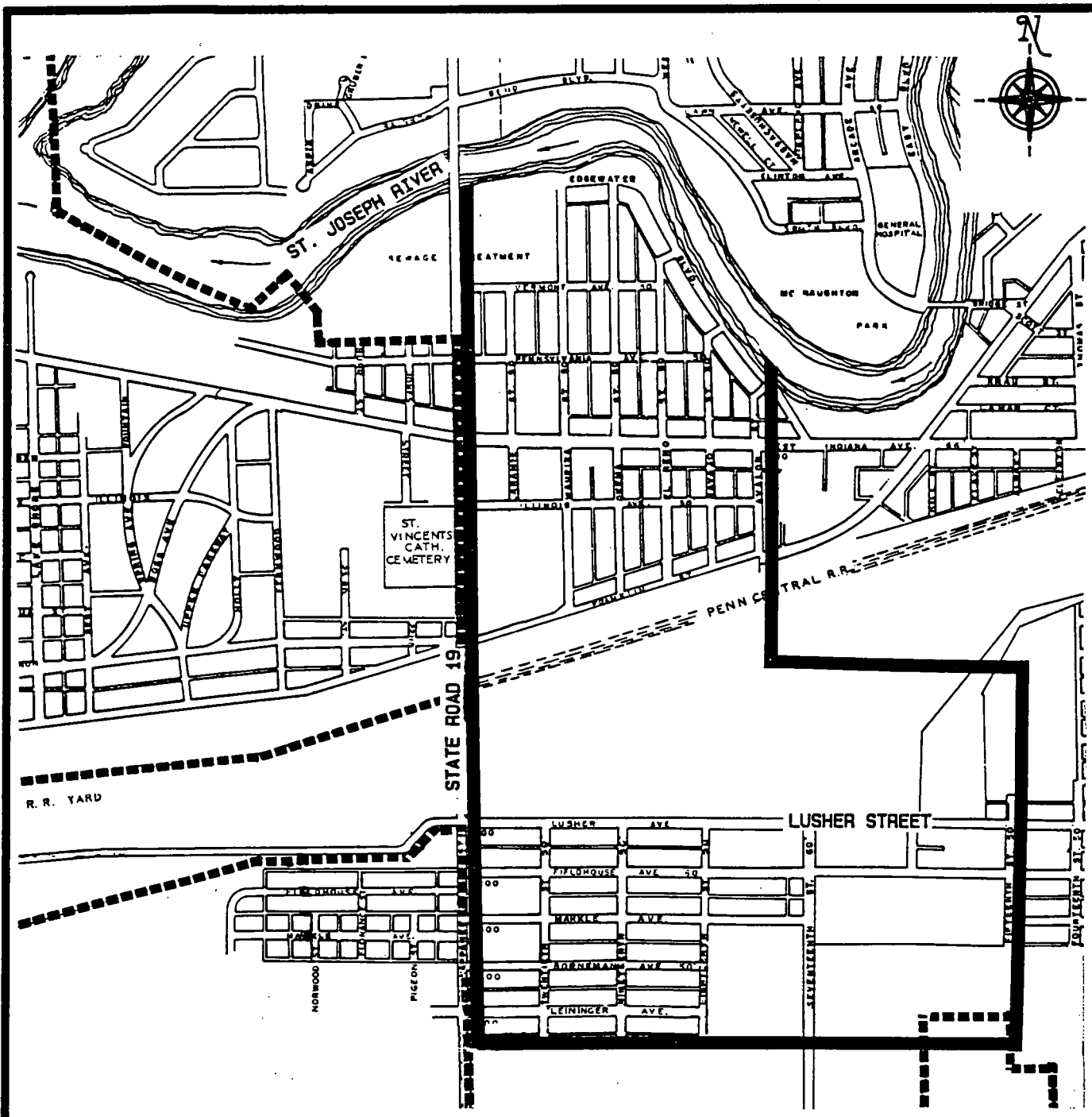


FIGURE 2  
SITE MAP  
LUSHER STREET  
GROUNDWATER CONTAMINATION  
ELKHART, INDIANA

SCALE 1 INCH = 1,000 FEET



DRAWN BY	DATE	PCS #
RADACK	9-20-88	1413
APPROVED BY	DATE	TDD #
AXE	9-20-88	5-8801-16

of the area indicating ECHD results and developed a sampling plan to verify previous results and begin to define the EOC. On November 3, 1987, the TAT sampled four of the wells previously sampled by the ECHD to confirm their results and evaluate the immediate threat to human health. The samples were analyzed for full scan volatile organic compounds (VOCs).

The analytical results confirmed the ECHD findings at all four locations (Table 1). Of greatest concern were the levels of 1,1,1-TCA (1,590 ppb) at 2121 W. Indiana and TCE (804 ppb) at 2205 17th Street which exceeded the U.S. EPA RAL and the Agency for Toxic Substance and Disease Registry (ATSDR) recommended bathing standards of 130 ppb and 500 ppb, respectively.

### 1.3 Threat to Human Health and the Environment

#### 1.3.1 Threats as Related to the National Contingency Plan

Paragraph (b)(2), Section 300.65 of the National Contingency Plan (NCP) outlines several conditions that must be considered to warrant a removal action. These conditions, two of which exist at the Lusher Street area, and will be elaborated on within the following subsections are:

- o Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals or food chain; and,
- o Actual or potential contamination of drinking water supplies or sensitive ecosystems.

Based on the preceding considerations, contaminated water wells in the Lusher Street area posed a substantial and imminent threat to human health.

##### 1.3.1.1 Actual or Potential Exposure

The presence of TCE and 1,1,1-TCA contaminated ground water beneath the Lusher Street area have been documented by both the TAT and the ECHD. These contaminants posed a threat of exposure as local residents and businesses utilized ground water from the contaminated aquifer.

##### 1.3.1.2 Actual or Potential Contamination of Drinking Water Supplies

Ground water contamination was documented in the Lusher Street area by both the TAT and the ECHD. Of 103 affected wells, 11 were found to contain levels exceeding or within 50 percent of the U.S. EPA's RALs. In addition, four wells contained levels exceeding ATSDR recommended bathing standards. Given the local

TABLE 1

ANALYTICAL RESULTS OF INITIAL TAT SAMPLING\*  
LUSHER STREET SITE  
ELKHART, INDIANA  
NOVEMBER 3, 1987

(results in ppb)

Sample Location -----	Contaminant -----	Concentration -----
Miller Residence 2205 17th Street	1,1,1-TCA TCE	3.2 804
Neitzke Residence 2121 W. Indiana	1,1,1-TCA TCE	1,590 38.5
Hargrove Residence 1601 Avalon	1,1,1-TCA TCE	49 106
Speraw Residence 1401 El Reno	1,1,1-TCA TCE	140 19.1

\*Samples Analyzed by Aqualab, Bartlett, Illinois.

geological conditions and contaminants present in the area, the potential for further contamination of the local ground water reservoir existed.

#### 1.3.1.3 Threats as Related to Specific Chemical Contaminants

##### Located On-Site

The TCE and 1,1,1-TCA contamination documented in the Lusher Street area posed health threats via direct contact, inhalation, and ingestive routes of exposure.

##### 1.3.1.3.1 1,1,1-Trichloroethane

1,1,1-TCA, a non-carcinogenic VOC, affects the skin, eyes, cardiovascular system and central nervous system. Liquid and vapor 1,1,1-TCA are irritating to eyes on contact and may cause conjunctivitis. Conjunctivitis is the inflammation of the mucous membrane that lines the inner surface of the eyelids. Repeated skin contact may produce a dry, scaly, and fissured dermatitis. In addition, 1,1,1-TCA acts as a narcotic and depresses the central nervous system. Acute exposure symptoms include dizziness, incoordination, drowsiness, decreased reaction time and unconsciousness.

##### 1.3.1.3.2 Trichloroethene

TCE, a carcinogenic VOC, affects the respiratory system, heart, liver, kidneys, skin, and central nervous system. Exposure to TCE vapor may cause irritation of the eyes, nose and throat. Liquid TCE may cause burning and irritation to the eyes and dermatitis as a result of prolonged skin exposure. Acute exposure to TCE depresses the central nervous system exhibiting such symptoms as headache, dizziness, vertigo, tremore, nausea and irregular heartbeat.

#### 1.4 Federal Cleanup Action

On November 19, 1987, the Regional Administrator verbally approved the expenditure of \$50,000 under the Superfund Amendments and Reauthorization Act (SARA) for the action at the Lusher Street site. The cleanup was conducted by PEI, Inc., the Emergency Response Cleanup Service (ERCS) contractor. PEI, Inc. subcontracted on-site activities to North American Aqua of Vandalia, Michigan, Shreiner and Sons, Inc. Elkhart, Indiana and Reith Plumbing, Elkhart, Indiana. The major phases of the removal are presented below in chronological order.

#### 1.4.1 Provision of Immediate Alternative Water Supplies

From November 13, to December 9, 1987, twelve carbon filtration systems were installed in residences/businesses previously identified by the TAT and/or ECHD as having wells contaminated with concentrations of VOCs within 50 percent of the U.S. EPA RALs (Table 2). On December 2, and December 31, 1987, hookup to the Elkhart City water Supply was completed at two residences which had wells contaminated with VOCs exceeding the U.S. EPA RALs (Table 2).

#### 1.4.2 Extent of Contamination Study

The TAT conducted an EOC from January 28 to March 16, 1988, which included collecting a total of 45 residential and business well samples. Sample collection was divided into five phases to allow for interpretation and mapping of the analytical results between phases. Analytical results, as they received, were plotted on an aerial photograph of the affected area and additional wells to be sampled were identified. Approximately 10 samples were collected during each phase. This approach allowed for the completion of an accurate EOC, while minimizing the total number of samples collected. Four of the 45 samples collected were analyzed for full scan VOCs. Based on the compounds identified in these samples four target VOCs were selected for analyses in the other 41 samples.

The analytical results identified two wells containing VOCs exceeding the U.S. EPA RAL. Five wells containing volatile organic compounds in concentrations within 50 percent of the U.S. EPA RAL were also identified. Additional wells containing minor, amounts of VOCs were identified as lying directly in the path of ground water flow thus putting them at risk from potential contaminant migration.

#### 1.4.3 Provision of Additional Alternative Water Supplies

From August 18 to August 31, 1988, based on the results of the EOC five additional residences and businesses were provided with city water hookups (Table 3). In addition, 19 residences downgradient of potential contamination migration were provided with carbon filtration units (Table 3).

#### 1.5. Cost Summary

All activities at the Lusher Street site were conducted by the ERCS contractor PEI, Inc. and their subcontractors North American Aqua, Shreiner and Sons Inc., and Rieth Plumbing. Site activity commenced on November 23, 1987, and ended on August 31, 1988. A summary of these expenditures is presented in Table 4.

TABLE 2

RESIDENCES AND BUSINESSES RECEIVING IMMEDIATE ALTERNATIVE  
WATER SUPPLIES  
LUSHER STREET SITE  
Elkhart, Indiana  
(results in ppb)

<u>Resident</u>	<u>Major Contaminant</u>	<u>Concentration</u>	<u>Filter Installed</u>
Interior Access 1629 Waurika	1,1,1-TCA	263	11-23-87
David Roth 2200 W. Indiana	1,1,1-TCA	266	11-24-87
Susan Frick 2108 W. Indiana	1,1,1-TCA	719	11-24-87
Ray Powers 1529 Okema	1,1,1-TCA	330	11-27-87
Homan Lumber 1650 Lusher	1,1,1-TCA TCE	3,800 608	11-24-87
Glass Master 1720 Markle	TCE	93	12-03-87
Scott Wilsey 2124 W. Indiana	1,1,1-TCA	572	12-07-87
Genevieve Blocher	1,1,1-TCA	257	12-03-87
Mac McCreary 1741 Fieldhouse	TCE	71	12-03-87
Linnie Bentley 1429 El Reno	1,1,1-TCA	358	12-03-87

TABLE 2 (Continued)

<u>Resident</u>	<u>Major Contaminant</u>	<u>Concentration</u>	<u>Filter Installed</u>
Chris Hargrove 1601 Avalon	TCE	106	12-09-87
Ken Speraw 1401 El Reno	1,1,1-TCA	272	12-03-87

## CITY HOOKUP:

<u>Resident</u>	<u>Major Contaminant</u>	<u>Concentration</u>	<u>Installed</u>
Francis Neitzke 2121 W. Indiana	1,1,1-TCA	1,590	12-02-87
Ed Miller 2205 17th Street	TCE	804	12-31-87

**TABLE 3**

**ADDITIONAL RESIDENTIAL/BUSINESSES RECEIVING ALTERNATIVE  
WATER SUPPLIES  
LUSHER STREET SITE  
ELKHART, INDIANA**

<u>Residence or Business receiving carbon units</u>	<u>Major Contaminant</u>	<u>Concentration</u>
Bromcock Residence 1423 Edge Water Blvd.	ND	
Diana Barnett 1430 Waurika	ND	
Michael Horwe 1920 W. Indiana	1,1,1-TCA	110 ppb
1419 Navajo	1,1,1-TCA	8.6 ppb
Malott Residence 1619 Avalon	1,1,1-TCA	69 ppb
Frank Kalman 1427 Edgewater Blvd.	1,1,1-TCA	41 ppb

**Residences In Path of Ground Water Flow Receiving Carbon Units**

1426 El Reno	NA
1405 Navajo	NA
Winnifred Brown 1411 Navajo	NA
Kathryn Bloch 1413 Navajo	NA
Jennie Mast 1417 Navajo	NA
1418 Navajo	NA
1414 Navajo	NA
1435 Edgewater Blvd.	NA



**TABLE 3 CONTINUED**

**ADDITIONAL RESIDENTIAL/BUSINESSES RECEIVING ALTERNATIVE  
WATER SUPPLIES  
LUSHER STREET SITE  
ELKHART, INDIANA**

**Residences In Path of Ground Water Flow Receiving Carbon Units**

Doke Residence 1400 Navajo	NA
Debra Ludflow 1415 Edgewater Blvd.	NA
1411 Edgewater Blvd.	NA
Doke Residence 1403 Edgewater Blvd.	NA
Bromcock Residence 1423 Edgewater Blvd.	NA

**Residences and Businesses receiving City Hookups**

Burk Residence 1420 El Reno		
David Roth 2200 W. Indiana Ave.	1,1,1-TCA	223 ppb
Linnie Bentley 1429 El Reno	1,1,1-TCA	430 ppb
1410 El Reno	1,1,1-TCA	370 ppb
J.E. Frick 2108 W. Indiana	1,1,1-TCA	1100 ppb
Homan Lumber 1650 W. Lusher	1,1,1-TCA	440 ppb
Scott Wilsey 2124 W. Indiana	1,1,1-TCA	754 ppb
Sotebeer Construction 1747 W. Lusher	TCE	100 ppb
Karen Linder	TCE	106 ppb

\* = Samples Analyzed by Gulf Coast Laboratories  
ND = Not Detected  
NA = Not Analyzed

**TABLE 4**

**SUMMARY OF EMERGENCY RESPONSE CLEANUP SERVICES CONTRACTOR  
EXPENDITURES BY SERVICE CATEGORY\*  
LUSHER STREET SITE  
ELKHART, INDIANA  
November 23, 1987-August 31, 1988**

<b>SERVICE</b>	<b>AMOUNT</b>
Labor	\$ 572.55
Subcontractors	25,584.59
<hr/>	
<b>TOTAL</b>	<b>\$ 26,157.14</b>

\*Based on estimated U.S. EPA 1900-55 Forms.

**TABLE 5**

**SUMMARY OF REMOVAL EXPENDITURES  
LUSHER STREET SITE  
ELKHART, INDIANA  
November 23, 1987-August 31, 1988**

<b>Organization</b>	<b>Amount</b>
<b>ERCS Contractor</b>	<b>\$ 26,157.14</b>
<b>U.S. EPA</b>	
<b>Technical Assistance Team (As of 08/26/88)</b>	<b>\$ 7,346.88</b>
<hr/>	
<b>TOTAL PROJECT COST</b>	<b>\$ 33,504.02</b>

In addition to ERCS expenses, funds were also expended by the U.S. EPA and TAT. A combined ERCS, U.S. EPA and TAT cost summary is provided in Table 5. All costs incurred are below the ceilings established in the final cost increase action memorandum signed by the Regional Administrator.

#### 1.6 Community Relations

No formal community relations plan was developed, although U.S. EPA Community Relations Coordinator Art Gaisior did visit affected residents to explain U.S. EPA actions in November 1987. U.S. EPA OSC Theisen maintained a rapport with local residents and press throughout the action.

#### 2.0 EFFECTIVENESS OF ACTION

##### 2.1 Local and State Officials

As discussed in Section 1.2.1 the ECHD was instrumental in identifying several affected residents and beginning to delineate the EOC. The City of Elkhart's Engineer Office provided maps of the area which were used throughout the project.

The Indiana Department of Environmental Management (IDEM) has agreed to assist home owners with the maintenance cost of their carbon filtration systems.

##### 2.2 Federal Actions

The U.S. EPA was the only Federal Agency involved at the Lusher Street site. Actions taken by the U.S. EPA mitigated the ingestion and inhalation threats posed to human health by VOC contaminated ground water.

#### 3.0 Problems Encountered

No major problems were encountered during this action.

#### 4.0 OSC RECOMMENDATIONS